REMARKS

Claims 1-21 were pending. Claims 1-21 were rejected. New claims 22-24 have been added. Claims 1-24 are pending.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Claims 9 and 19 describes that the elongation of the restored rail seat is at least about 10%. However, the specification teaches that the polymer material has an elongation of at least about 10% or higher. Claims 9 and 19 have been amended to recite that the polymeric material has an elongation of at least about 10% or higher. Therefore, this objection has been overcome.

Claims 1-4, 6-9, 11-14, 16-19, and 21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9, 13-21, and 25 of copending Application No. 12/034,918 in view of Giorgini et al (USP No. 7,138,437—already made of record).

Since there are no allowed claims as yet, and claims 1-4, 6-9, 11-14, 16-19, and 21 have been provisionally rejected, applicants will defer filing a response to this nonstatutory obviousness-type double patenting rejection at this time.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgini et al (USP No. 7,138,437) ("Giorgini") in view of Rhodes et al. (USP No. 4,295,259) ("Rhodes") as evidenced by Young et al. (USP No. 5,173,222) ("Young").

Applicants traverse the rejection of claims 1-21 based on Giorgini, Rhodes and Young for the reasons set forth below.

The subject patent application (U.S. Serial No. 10/598,379) is a 371 application which claims priority from PCT/US2005/010066, filed 3/24/05, which in turn claims priority from U.S. Serial No. 60/556,209, filed 3/24/04. The earliest publication date of Giorgini is 9/9/04. Therefore, the priority date of the subject application (3/24/04) is prior to the earliest publication

date of Giorgini (9/9/04). The subject matter of the pending claims which are rejected based on Giorgini is disclosed in U.S. Serial No. 60/556,209. Accordingly, Giorgini is removed as a prior art reference.

In spite of the removal of Giorgini as a prior art reference, applicants will hereinafter respond to the Examiner's comments relating to Giorgini. Regarding claims 1, 11, and 21, Giorgini does not teach a method for repairing concrete rail tie members. Giorgini does not teach using a poly(urethane-urea) material for conducting such repair. "Structural members" which are wooden rail ties are substantially different from concrete rail ties. Poly(urethane-urea) is a totally different type of polymeric material than polyurethane per se. Giorgini only teaches the use of a polyurethane which is introduced into a wooden rail tie void (spike hole) and cured for purposes of reintroducing a rail spike into the refurbished rail tie.

The type of material used to repair a concrete rail seat is totally different from that used to repair a hole in a wooden railroad tie. Rail seat repairs have typically been accomplished using an epoxy material. Applicants have discovered that the use of a poly(urethane-urea) in the subject method offers many advantages over either an epoxy or a polyurethane.

The method of restoring a damaged rail seat located on a concrete rail tie is a totally different technology than that which is described by Giorgini. In the case of concrete ties, the rail seat is actually the section of the rail tie that holds the rail plate. Conventionally, rails are held to rail ties by rail clips or fasteners that bear down on the rail flange. A rail seat insulates the rail from the rail ties. There are no spike holes in concrete rail ties. Concrete rail ties have been found to be prone to wear particularly in sandy and wet locations or on steep grades where the locomotives use sand for traction. Thus, the claimed method employs poly(urethane-urea) to repair and build up the section of concrete rail tie that has been eroded or deteriorated.

The claimed polymeric material is substantially sag resistant and maintaining its shape without substantial runoff from the concrete rail tie during said restoring of the damaged rail seat, and prior to fully curing of the poly(urethane-urea). This overcomes the above problems which exist when damaged rail seats on concrete rail ties are restored. This problem does not occur when a polymeric material is plugged into a wooden rail tie void prior to reintroducing a rail spike into the cured polymeric plug. The spike hole confines the polyurethane material during the curing process so that sag and runoff do not occur in repairing spike holes in wooden rail ties. Poly(urethane-urea) which applicants have determined maintains its shape without substantial runoff from the concrete rail tie during restoration of the damaged rail seat is not needed in repairing spike holes in wooden rail ties. Therefore, it is not necessary for the spike hole plug material to have sag resistance and prevent runoff during curing. A thin coating on a concrete rail seat is much more difficult to cure at low temperature due to substantial heat absorption by the concrete mass. Heat absorption is not as critical in a spike hole on a wooden tie because the polymer is applied as a larger mass (not a coating), which generates heat through an exothermic reaction, and more heat is retained due to the insulating properties of the wooden tie.

Furthermore, the polyurethane material described by Giorgini (and Rhodes and Young) is only sag resistant after (not during) the curing stage. Since the claimed poly(urethane-urea) has sag resistant and runoff prevention properties when it is initially dispensed, the need for applying plates, clamps and other containment equipment to enclose and confine the repair material during curing is alleviated. Thus, a fully restored rail seat article is produced by the claimed method without requiring auxiliary containment equipment which would be needed if an epoxy or polyurethane material are employed.

Furthermore, the claimed restored rail seat maintains the gauge of a rail assembly under dynamic operating conditions without the aid of strength enhancers which must be employed by Giorgini along with the polyurethane material wooden rail tie plugging material. These strength enhancers taught by Giorgini are used to enhance the pull strength of the railroad spike when it is hammered into the polymeric plug which was introduced into a wooden rail tie void.

Again, this a totally different technology than restoring a rail seat on a concrete rail tie. This is not applicable to concrete rail ties which do not involve the use of railroad spikes.

With respect to claim 21, the language consisting essentially of limits the "polymeric material" to poly(urethane-urea) material and those that do not materially affect the basic and novel characteristics of that polymeric material. Polyurethane materials are clearly excluded. Since Giorgini and Rhodes and Young are all directed to polyurethane materials, they are outside the scope of claim 21.

With respect to claims 22-24, the language consisting essentially of limits the "poly(urethane-urea) material" to (a) at least one polyol compound, (b) at least one amine compound, and (c) an isocyanate compound and those that do not materially affect the basic and novel characteristics of that poly(urethane-urea) material. Polyurethane materials are clearly excluded. Since Giorgini and Rhodes and Young are all directed to polyurethane materials which do not include all components (a)-(c), they are outside the scope of claims 22-24.

With respect to claim 1, the Examiner admits that Giorgini does not expressly teach restoring the damaged rail seat by curing the polymeric material under ambient temperature and pressure conditions. The Examiner then applies Rhodes in rejecting claim 1. Rhodes does not teach restoring rail seats on concrete ties, but as in Giorgini, describes a method of filling spike holes in wooden railway ties. Filling spike holes in wooden rail ties is substantially different from restoring rail seats on concrete rail ties for all the reasons set forth above. Rhodes teaches a method of plugging a spike hole in a wooden railroad tie by adding a polyurethane foam which is totally different than applying poly(urethane-urea) to an abraded rail seat for the reasons set forth above. Rhodes does not have the required sag resistance and runoff resistance during application and prior to full cure of the polymer as described above. Giorgini and Rhodes are analogous art to each other because they are from the same field of endeavor, namely plugging spike holes in wooden rail ties with polyurethane materials. However, Giorgini and Rhodes are not analogous art with respect to the subject claims which relate to restoring rail seats on concrete railroad ties with a poly(urethane-urea) material. The two cannot be considered

analogous because they are different technologies, different materials of construction, behave differently, have different problems to overcome, etc.

Rhodes employs polyurethane foam compositions. As previously stated, the polymeric material claimed in the above-described patent application is a solid (non-foam), high-density, poly(urethane-urea) material. Conventionally, rail seats in concrete rail ties are not made of foam polyurethane. The use of a foam material would be totally unacceptable and unsuitable for the repair of rail seats on concrete ties. A polyurethane foam will undergo deformation and fatigue due to pressure and temperature. Polyurethane foams can be used in confined areas such as spike holes, but they are not employed in unsupported and non-confined areas such as on an abraded rail seat. As previously explained in the prior filed Amendment, there is also instability caused to polyurethane foams by environmental moisture. Moreover, polymeric foams, such as for example polyurethane foams, can stove-pipe out of a spike hole or other filled defect due to the reaction of a polyurethane material with water. This presents a significant increase in the time required to complete end use operations in the field.

The Examiner admits that with respect to claims 1, 11, and 25, the combination of Giorgini and Rhodes do not expressly teach that polyurethane material is used to cure defects in rail seats on concrete rail ties. The Examiner has cited Young stating that it provides motivation that one having the ordinary skill in the art would look to repair defects in a rail tie and rail seat with an epoxy. The state of the art for rail seat repair by others than the assignee of the above-reference application, such as Young, involve the use of epoxy materials which cure fairly slowly. Young describes problems in repairing abraded ties quickly enough to limit hold up to freight traffic to an acceptable time, and in restoring badly abraded rail seats to their original dimensions. Young also states (column 1, line 63) that "if freight trains are run even slowly over the freshly repaired rail seats, if the epoxy is still in a plastic state, it will be pumped out thus up setting the true level of the rail seat...".

Young's solution to the above problem requires using equipment such as clamps for confining the epoxy material, and applying heat and pressure to the confined epoxy material. However, the claimed method employs a poly(urethane-urea) material which does not require

confining equipment, nor does it need to employ heat or pressure. Even when epoxy is applied in a relatively thin layer, the cure time can take 12 to 36 hours at typical ambient temperatures. This is completely unacceptable from a train operator's point of view. If the trains are running even slowly over the freshly repaired rail seats, and if the epoxy is still in a plastic state, it will run-off. This will disrupt the true level of the rail seat, causing cavities to form in the rail seat material. This also results in improper bonding to the abrasion plate. All of these factors will lead to subsequent failure of the rail seat.

Young is able to speed up the repair process by confining the epoxy material using confinement equipment, and then having to apply heat and pressure (all of which are cumbersome and difficult to handle). Our claims define technology which is a substantial improvement over Young for the following reasons: 1) there is no confinement equipment which is required; 2) there is no pressure which is required; 3) there is no heat which is required; and 4) the claimed poly(urethane-urea) material meets the requirements which are not met by epoxy materials such as durability, strength, adhesion, gel time, compressive loading, elongation, speed, ease of application, etc.

The Examiner admits that Giorgini does not teach wherein the curing of the polymeric material can be at an ambient temperature as low as 45 F. The Examiner states that Rhodes teaches polyurethane foam materials are curable at an outdoor ambient temperature and pressure. Again, Rhodes is dealing with a polyurethane foam used in spike holes for the repair of wooden railroad ties. Our claims are directed toward concrete railroad ties which are substantially different from wooden railroad ties. Filling a spike hole in a confined area is totally different from applying an unconfined and unsupported coating onto a concrete rail seat. Maintaining sag resistant and the shape of the polymeric material without substantial runoff cannot be accomplished using the polyurethane foam of Rhodes.

The Examiner admits that Giorgini does teach wherein the composition used to repair the rail tie must at least have a polyol and an isocyanate. Giorgini does not relate to a polymeric material consisting essentially of a poly(urethane-urea) material as previously described above

Regarding claims 2-3 and 12-13, the Examiner admits that Giorgini does not teach: (1) wherein the damage rail seat is restored without requiring the use of non-ambient heat and (2) wherein the damage rail seat is restored without requiring the use of non-ambient pressure. The Examiner states that Rhodes teaches wherein the polyurethane is curable at an outdoor ambient temperature and pressure. Rhodes does not teach the claims 2-3 and 12-13 for the reasons set forth above. The claimed method and Rhodes are totally different and cannot be compared.

Regarding claims 4-5 and 14-15, for the reasons set forth above, Giorgini does not teach wherein a polymeric material consisting essentially of a poly(urethane-urea) material as previously described above has a gel time that can be less than 5 seconds in the restoration of rail seats on concrete rail ties.

Regarding claims 6 and 16, the Examiner admits that Giorgini does not explicitly teach wherein the Set Time of the polymeric material is sufficient for contouring the restored rail seat in situ without requiring the use of non-ambient heat.
The Examiner states that Rhodes teaches wherein the repair method is in situ and at ambient pressure and temperature. Rhodes does not teach the claims 6 and 16 for the reasons set forth above. The claimed method and Rhodes are totally different and cannot be compared.

The Examiner admits that regarding claims 7-10 and 17-20, the combination of Giorgini and Rhodes do not expressly teach: (1) wherein the rail ties having the restored rail seat maintains the gauge of a rail assembly under dynamic operating conditions; (2) wherein the modulus of the restored rail seat is increased to a level which will resist compressive loading and maintain the rail gauge of the rail assembly; (3) wherein the Elongation of the restored rail seat is at least about 10%; and (4) wherein the Shore D (24 hour) Hardness of the restored rail seat is at least about 65. The Examiner states that Rhodes teaches that polyurethane would lead to a rail assembly system that does not deform or fatigue due to temperature or pressure changes. Again, Rhodes specifically deals with polyurethane foam used in a confined

spike hole which is not a suitable material for the repair of rail seats on concrete ties. A polyurethane foam will clearly undergo deformation and fatigue due to pressure and temperature. Rhodes does not teach the claims 7-10 and 17-20 for the reasons set forth above. The claimed method and Rhodes are totally different and cannot be compared.

The Examiner states that Giorgini teaches that strength enhancers, hydrophobic enhancers, and impact absorption enhancers can be added to polyurethane to make a more stable repaired article. These materials will give a more stable repaired article for the repair of spike holes in wooden ties but one cannot conclude that it would improve the performance of a coating on a concrete railroad tie. Again, one cannot compare a polymeric plug in a wooden tie with a polymeric coating on a concrete tie -- they are totally different.

For the reasons stated above, one of ordinary skill in the art would not have obviously recognized that the claimed properties of the rail seat restored with a poly(urethane-urea) material would have naturally flowed from the claimed process and the claimed materials used in the claimed process. Giorgini provides a similar process and similar materials as Rhodes. Giorgini and Rhodes deal with a polyurethane polymeric plug in a wooden railroad tie whereas the claims relate to a poly(urethane-urea) material coating on a concrete railroad tie.

Claims 22-24 have been added. Each claims a poly(urethane-urea) material which consists essentially of (a) at least one polyol compound, (b) at least one amine compound, and (c) an isocyanate compound. The polyurethane materials of Giorgini, Young and/or Rhodes do not consist essentially of (a) at least one polyol compound, (b) at least one amine compound, and (c) an isocyanate compound. Therefore, new claims 22-24 patentably distinguish over Giorgini, Young and/or Rhodes.

Regarding the rejections described above, if a proposal for modifying the prior art in an effort to attain the claimed invention causes the art to become inoperable or destroys its intended function, then the requisite motivation to make the modification would not have existed. *See In*

re Fritch, 972 F.2d at 1265 n.12 ("A proposed modification [is] inappropriate for an obviousness inquiry when the modification render[s] the prior art reference inoperable for its intended purpose."). Therefore, the rejection of claims 1-21 is clearly erroneous for the reasons set forth above. Furthermore, claims 1-24 are allowable.

Regarding the rejections described above, "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 353 F.2d 238, 241 (CCPA 1965); see also Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 448-49 (Fed. Cir. 1986). Therefore, claims 1-24 are allowable.

No new matter has been added by this amendment. Allowance of all claims 1-24 is requested. The Examiner is requested to call the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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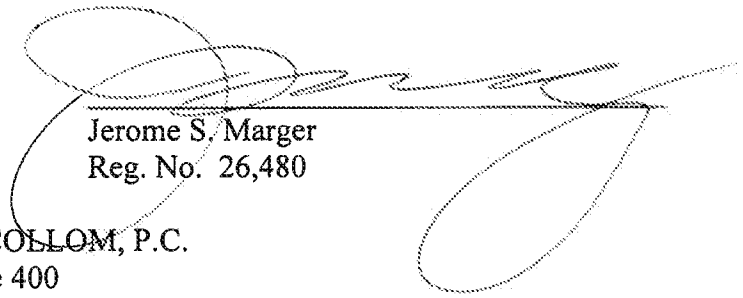

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